

BUREAU OF ENVIRONMENT CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting

DATE OF CONFERENCE: October 18, 2006

LOCATION OF CONFERENCE: John O. Morton Building

ATTENDED BY:

NHDOT

Bill Hauser
Randy Talon
Darrel Elliott
Craig Drouin
Jim Marshall
Kelsey Thomas
Mike Hazlett
Chris Carucci
Wayne Clifford
Tobey Reynolds
Jason Tremblay
Bob Landry
Bob Aubrey
Dan Taylor
Kevin Nyhan

**Federal Highway
Administration**

Jamie Sikora

Army Corps of Engineers

Rich Roach

NH DES

Steve Couture
Gino Infascelli

NH Fish and Game

John Magee
Kim Tuttle

EPA

Mark Kern

**US Fish and Wildlife
Service**

Bill Neidermyer

McFarland-Johnson, Inc.

Vicki Chase
Mike Long

CLD Consulting Engineers

John Byatt

City of Nashua

Joe Mendola

NOTES ON CONFERENCE:

Nashua, NHS-STP-F-X-T-0101(024), 10136A

Mike Long presented the proposed NH 101A expansion project, displayed on three large roll plans on an aerial photo base. The study corridor is between Somerset Parkway and Celina Avenue. The proposal is to expand the road to three lanes in each direction, and to enhance multi-modal transportation along the corridor including accommodations for pedestrians and bicycles. Signals along the roadway will be better coordinated to improve traffic flow. The project will be planned in a manner that is sensitive to the context of the area.

Vicki Chase presented the Environmental Resources portion of the project. Environmental Resources are being studied and an environmental report is being prepared for the submission of a Categorical Exclusion. Resources being studied include:

Pedestrian and Bicycle facilities: Existing facilities, both formal and informal or de facto, are being identified.

Noise: A noise study will be prepared for the project.

Water Quality: McFarland-Johnson, Inc. (MJ) will test water quality at ten locations, to be determined based on a watershed analysis. Pennichuck Brook is a water supply for the City of Nashua, and the water quality testing is in response to concerns about impacts to the water supply.

Wetlands: MJ identified wetlands at two locations: in a forested wetland in front of Building 19 and along the margin of Round Pond. The wetlands along the corridor generally drain to the east and to the north into

a ditch along Somerset Drive and then into wetlands associated with Pennichuck Brook. Round Pond is a kettlehole pond that lacks an outlet, and the only inlet is a drainage ditch along its east side. The margin of Round Pond comes very close to NH Route 101A, and any road widening in this area will have to take into account the shoreline of the pond. The pond is a valuable local resource and is used recreationally. Although it is compromised by the development surrounding it, it retains a small intact forested buffer.

Archaeology: MJ has received the draft archaeology report, which found 8 areas of sensitivity in the study corridor.

Historical: MJ is awaiting the draft historical report. However, we know that there are only two sites along the corridor that are potentially eligible for the National Register: the Fab-Braze factory building and a bank housed in a former house. Both structures are on the south side of NH 101A.

Hazardous Materials: MJ is in the process of researching available online databases for potential hazmat involvement.

Participants had several comments about the existing resources and what might be done to mitigate impacts of the road widening. These ideas included:

- Look for ways to minimize paved areas (including existing parking lots) and enhance buffer areas around Round Pond (Rich Roach)
- Avoid, or minimize as much as possible, impacts to Round Pond (All impacts to Round Pond and the surrounding buffer should be avoided at all cost) (R. Roach & John Magee)
- Protect and improve water quality in Pennichuck Brook by enhancing stormwater treatment throughout the corridor (R. Roach)
- Mitigate increases in pavement along the corridor by looking for ways to reduce impervious area
- Evaluate using the existing rail line to the south of NH 101A as an alternative transportation route
- Improve connectivity between properties north and south of NH 101A to provide alternative routes for traffic
- Improve multi-modal transportation opportunities.

This project should be brought back to the group at a future meeting as design proceeds and mitigation opportunities are identified.

Unity, 14557A

John Byatt, CLD consulting Engineers, presented this project. A corrugated steel plate arch structure, that carried Unity Stage Road over the Little Sugar River in the town of Unity, was washed out during the Fall Flood of 2005. Unity Stage Road is a rural, residential road with relatively low traffic volumes. The structure was approximately 60 feet long with a 29.4-foot span (estimated from the existing footings still in place). It was placed on concrete footings on a 16-degree skew and the roadway at the bridge was approximately 25 feet from guardrail-to-guardrail (per the NHDOT Inspection Report). Since the structure washed out, the channel slopes have been regraded at an approximate 2:1 slope up to the road.

The Engineering Study Report has been completed and approved by NHDOT. Borings are currently underway as part of the Preliminary Plan Submission. The first task performed during the Engineering Study was the hydraulic analysis. Three structure concepts were evaluated hydraulically. These options were:

- to replace the bridge in-kind with a metal plate arch with the original span length;
- to place a larger precast concrete arch structure within the river banks; and
- to construct a bridge to span as much of the river banks as possible.

The result of the hydraulics study indicates that a bridge with stub abutments is the only option that provides sufficient freeboard in a 100-year flood. The largest precast concrete arch option, a 53'-11" span x 15' rise precast concrete arch structure, provides just under six inches freeboard, which is less than required and does not meet standard specifications. The replace in-kind option also does not meet the hydraulic requirements and does not adequately pass the 100-year flow, as the waterway opening is less than the much larger precast concrete arch option.

The existing Stage Road approaching the bridge is on a horizontally curved alignment that does not meet AASHTO requirements. Two roadway alignment options were examined to alleviate this problem and are discussed below.

Option 1 – Through Roadway: Option 1 explores maintaining the existing throughway of Unity Stage Road at the intersection (with a local Class VI road) by altering it to meet current standards. In order for this option to meet the guidelines for a 30 mph local road, the curve of Unity Stage Road at the intersection would need to be a minimum radius of 250 feet. The 250-foot radius is much larger than existing and would substantially impact the adjacent wetlands at the outlet of Sawyer Brook, adjacent to the bridge and intersection. Wetland impacts of 3,434 sf would occur. Also, the Sawyer Brook Culvert crossing under Unity Stage Road will need to be removed and replaced.

Option 2 – 4-Way Stop: An alternative to maintaining Unity Stage Road as a through road is to realign the intersection to provide a 4-way stop. Option 2 follows the existing roadway fairly closely along the bridge and terminates at the intersection with a stop sign. This options results in fewer slope impacts outside the bridge crossing area and approximately 1,841 sf of wetland impact. This is also the more cost effective option.

Due to cost, wetland and property impacts, duration of construction, as well as ease of construction, Option 2 was recommended as the most practical and cost-effective option. Length of construction time is an important factor as the Town wishes to complete construction in 2007. Structure alternatives were then explored in the report. Two bridge types, a steel girder bridge and a pre-stressed concrete box beam bridge, that are similar in plan and pass hydraulics requirements for the 100-year flood, were explored. Both bridge options are 90-foot, single spans with stub abutments placed as far up the existing river banks as possible. The third structure option explored was a 54-foot span precast concrete arch which did not pass the 100-year flood criteria. The steel girder option was recommended on Alignment Option 2 as the hydraulic requirements are met and it is the most cost-effective structure option.

It was noted in the meeting that the Alignment Option 2 appeared to be an appropriate option for the project. John Magee and Gino Infascelli raised a question about the size and condition of the Sawyer Brook Culvert. It was noted that as construction was going to take place in the immediate vicinity that it might be a good idea to replace the culvert if needed. CLD said the condition of the culvert will be examined and a hydraulic study of the culvert capacity could be performed. Rich Roach indicated that the project would qualify for a State Programmatic General Permit (SPGP).

Canterbury, 14719

Jim Marshall presented this project, which involves the restabilization of approximately 400-500 feet of failing slope on West Road off of I93 exit 18 near the sod farm. The slope has been migrating away from the road and since the flooding of May 2006 is now of reasonable concern. The project area is currently reduced to one lane of signaled traffic. There are wetlands located at the toe of slope and the project is also adjacent to Land and Community Heritage Investment Program (LCHIP) property, managed by the Society for the Protection of NH Forests (SPNHF). Jim presented option #1 as installing a sheet pile wall, which would be placed to a depth of 60-80 ft. In this case the work would all be done within the ROW and even if the slope were to fail the road would remain in tact. In this case the road would need to be closed for 4-6 weeks and the cost would be approximately \$820,000.

Option #2 was presented as a Geogrid style restabilization, which would create a stabilized 1.5:1 slope. In order to construct the slope, the trees would need to be cleared off of the slope and there would likely be wetland impacts at the toe-of-slope but Rich Roach indicated that he would have no issues with either option due to minimal wetland impacts. The price of this project would be around \$500,000 and the road would need to be closed for 8-12 weeks. Rich Roach expressed that he would like to have seen some Aerial Photos and Topo Maps. J. Magee asked what soil the conditions were and if 1.5:1 slope would still fail with loose substrate. Jim Marshall indicated that the slope should not fail and that the slope would be seeded but no plantings are expected as part of the slope stabilization. It was noted that, if drainage structures are constructed, drainage would be treated prior to discharge. No one objected to the project as proposed and it was indicated that after the wetlands impacts are quantified (if they are substantial) the project would be presented again.

Alstead, 14540W

Tobey Reynolds presented this project, which involves stabilizing permanent repairs along a flood damaged portion of NH Route 123A from the NH Route 123 intersection to Vilas Pool in Alstead. The temporary repairs reconstructed the roadway and stabilized the roadway embankment with Cold River. According to the Department's Geotechnical Section the riprap was placed at a 1 1/2 :1 slope, on sloping bedrock along the cold river, and is no longer stable and requires attention. The Department's preliminary design includes construction of a concrete block "retaining wall," doweled into the bedrock at the toe-of-slope, adjacent to the water, to provide sufficient support for the slope. Tobey inquired as to the preferred vegetative treatment on the riprap, similar to the Alstead, 14541I project. The project is also planning to address an area along the banks of Warren Brook upstream of the 123A bridge to prevent further erosion to the bridge abutments.

Rich Roach indicated that the Department should do what is needed to restore the roadway. Kim Tuttle asked if the roadway could be shifted away from the river and eliminate the need for the concrete block wall, a barrier to wildlife movement along the river. Steve Couture inquired if other alternatives were considered, such as doweled stones along the toe-of-slope. After discussion of these issues, it was determined that the Department would look into alternatives and meet with NHF&G, DES Rivers Program and DES Wetlands Bureau.

One major consideration is the project timeframe. FEMA is providing the Department with \$42,000 to do work. This is not nearly enough to complete the improvements, however FEMA may participate in other treatments along the bank. This money must be spent in short order, driving an accelerated design and construction timeframe. Rich Roach indicated that the project would qualify for a State Programmatic General Permit (SPGP), provided the Department coordinate with the interested State agencies.

Alstead, X-A000(472), 14541I

Kevin Nyhan began the presentation by providing a brief overview of the project history. The project involves the reconstruction of a flood-damaged section of NH Route 123 on new alignment beginning approximately 1,500 feet west of Cobb Hill Road, continuing 2,500 feet east. In addition, the culvert (BR #097/142) that carries Mad Brook under NH Route 123 will be replaced. The Department coordinated the design with NHF&G, DES Wetlands Bureau and DES Rivers Management and Protection Program. Major considerations include the incorporation of vegetation along the Warren Brook embankment beginning at a point approximately 3' above the Q100 elevation to bolster the revegetation, and the construction of step pools at the confluence of Mad Brook and Warren Brook to provide the opportunity for fish passage up Mad Brook. The outlet elevation of the Mad Brook Bridge is approximately 3' above where the Department would normally construct the outlet to accommodate a future raise in the bed elevation of Warren Brook. This future work is an anticipated recommendation in the Cold River/ Warren Brook and Bowers Brook Restoration Plan currently being completed by Horizons Engineering.

Bob Aubrey indicated that the step pools were not designed as recommended by Horizons Engineering as there is severely limited room between the proposed bridge outlet and the confluence with Warren Brook (approximately 24'). Everyone understood and agreed that the Department's proposal was appropriate given the constraints. Rich Roach inquired if proposed vegetation could be brought lower on the bank and Gino Infascelli indicated he thought the Department was using the Q50 elevation, not the Q100 elevation. B. Landry responded that the Q50 and Q100 elevations are essentially the same (there is a 6" difference).

Kevin Nyhan stated that there would be approximately 48,000 sf of wetland impacts and no mitigation was being proposed based on an agreement between the Department and the DES Wetlands Bureau for these flood projects in Alstead. He added that there are many "mitigation" type design elements included in the design. Rich Roach indicated that the project would qualify for a State Programmatic General Permit (SPGP).

This project was previously reviewed on the following dates: 3/15/06, 5/17/06 & 8/23/06

Alstead, X-A000(473), 14541J

Chris Carucci presented this project, which involves the reconstruction of a flood damaged section of NH Route 123 beginning east of the intersection of NH Route 12A & Griffin Hill Road, proceeding west to a point approximately 1,000 feet west of the NH Route 123A intersection. This project includes stabilizing the embankment and constructing an additional lane of traffic where there is currently a temporary signal for alternating one-way traffic. Keying in the stone would be done in a similar fashion as the Alstead, 14540W project, with a concrete toe wall, 2'-4' high. This project also includes the replacement of the bridge just east of NH 12A intersection to improve its hydraulic capacity from passing a Q10 to a Q100. Bob Landry noted that the fine-tuning of design elements has been delayed until the results of the Cold River/ Warren Brook/ Bowers Brook Restoration Plan are available. Steve Couture indicated that they would be available the following week. He added that the restoration plan would also include permit applications for two (2) priority areas, one of which may be along this stretch of Warren Brook. John Magee stated that the Natural Resource Conservation Service (NRCS) has received approximately \$7.7 million to address restoration needs along these rivers. Although, funded sites have already been determined, they include some of the sections under discussion for this project.

Kevin Nyhan updated the agencies on the approach the Department has taken to address floodplain impacts for this project, as well as for the Alstead, 14541I project. Based on discussions with the Federal Emergency Management Agency (FEMA), US Geological Survey (USGS) and the NH Bureau of Emergency Management (NHBEM), the Department should use the post-flood USGS flood study to determine what level of involvement is required in flood prone areas. This project will require the placement of approximately 1,700-2,000 cy of fill within the floodplain. The NHDOT roadway design and floodplain fill will be incorporated into the USGS flood model for use by FEMA in developing the next Flood Insurance Rate Mapping (FIRM) in Alstead. The floodplains in this area are unnumbered A zones. Rich Roach inquired if this would meet approval with Executive Order 11988. K. Nyhan responded that the Federal Highway Administration (FHWA) has already signed-off on the approach, specifically for the Alstead, 14541I project, indicating that the project meets the intent of Executive Order 11988.

Although wetland impacts have not been quantified, R. Roach indicated that the project would qualify for a State Programmatic General Permit (SPGP), provided the impacts were under 3.0 acres and State resource agencies are supportive of the approach the Department takes with this project.

This project was previously reviewed on the following dates: 8/23/06

Walpole, 14540U

Bob Landry presented this project, which involves the construction of a replacement structure for the bridge that carries NH Route 123 over Cold River in Walpole. The proposed structure is a simple span, butted box beam structure that completely spans the river.

Steve Couture asked if floodplain impacts had been quantified and if a floodplain culvert had been considered to pass water from one side of the bridge to the other. B. Landry responded that, since the floodwater re-enters the river on the same (upstream) side of the bridge, there is no need for a floodplain culvert. There is no actual barrier to getting floodwater back into the river. To facilitate this movement, the Department is proposing an armored, upstream approach "ditch" that protects the infrastructure, while allowing floodwater to re-enter the river. Everyone in attendance agreed that the Department's approach was appropriate. Even though wetland impacts had not yet been quantified, Rich Roach indicated that the project would qualify for a State Programmatic General Permit (SPGP).

This project was previously reviewed on the following dates: 3/15/06

Bartlett, 14372

Minutes not yet prepared. For information on this project contact either Mark Hemmerlein (mhemmerlein@dot.state.nh.us or 271-3226) or Bob Landry (blandry@dot.state.nh.us or 271-2171).